Sheet 1 of 2			INFORMA	TION DISCLO	SURE STATEMENT	T				
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PAT	REFERE	ID TRADEMARK OFFIC	E	APPLICAN Mitsuaki	IT OSHIMA			3	JUN 0 7 20	205 ()
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			U.	S. PATENT D	OCUMENTS			,		
*EXAMINER INITIAL		DOCUMENT NUMBER	DATE		NAME	CI	LASS	SUBCLASS	FILING DA	
78	AA	3,824,548	7-16-74	Sullivan et al.						
٩٩	АВ	3,959,726	5-25-76	Hino	shita et al.	1				
PP	AC	4,303,939	12-1-81	Step	hens et al.					
PP	AD	4,303,941	12-1-81	М	arti et al.					
PP	AE	4,809,426	1-5-82	Tar	naka et al.		_			
PP	AF	4,535,352	8-85	ŀ	-taskeli					
PP	AG	4,564,858	1-14-86		Resch					
· PP	АН	4,581,639	4-8-86	· Judge						
PP	Al	4,769,819	9-6-88	Matsutani et al.						
PP	AJ	4,794,447	12-27-88	Т	sinberg					
PP	AK	4,800,426	1-24-89		Glenn					
PP .	AL	4,817,192	3-28-89	Phi	llips et al.					
rp	AM	5,007,088	4-9-91	0	oi et al.					Į.
PP	AN	5,029,003	7-91	Joni	nalagadda					
PP	AO	5,134,464	7-28-92	Ва	sile et al.					
			FORE	IGN PATENT	DOCUMENTS					
		DOCUMENT NUMBER	DATE	C	DUNTRY	CL	ASS	SUBCLASS	TRANSLA YES	TION NO
· PP	AP	5-327807	12-10-93	,	Japan				abstract	
		OTHER	DOCUMENT(S) (II	ncluding Autho	or, Title, Date, Pertine	ent Pages,	Etc.)			
88	AQ	Masafumi SAITO et al., "Bit Error Rate Characteristics of OFDM in Multipath Environment", 1991								
PP	AR	Ryutaro OHMOTO e	yutaro OHMOTO et al., "π/4-shift QPSK Subcarrier Transmission", 1991							
EXAMINER	MINER PPM DATE CONSIDERED 10/17/07								-	

^{*}EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include cop this form with next communication to applicant.

Sheet 2 of 2			INFORMA	TION DISCLOSURE STATEMENT					
FORM PTO 1449 (m	-	TMENT OF COMMERC	=	ATTY DOCKET NO. 2003_1578		AL NO. 195,780			
PAT	ENT AN	D TRADEMARK OFFICE ICES CITED BY APPLICAN	Ē	APPLICANT Mitsuaki OSHIMA					
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			U.	S. PATENT DOCUMENTS					
*EXAMINER , INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DA APPROPI		
PP	AA	5,181,112	1-19-93	Citta et al.	<u> </u>				
FP	AB	5,377,051	12-27-94	Lane et al.					
PP	AC	5,400,084	3-21-95	Scarpa					
PP	AD	5,576,902	11-19-96	Lane et al.					
99	ΑE	5,218,622	6-8-93	Fazel et al.					
PP	AF	5,561,468	10-1-96	Bryan et al.	\				
PP	AG	5,598,220	1-97	Citta et al.	\			· ·	
Pβ	АН	5,802,241	9-1-98	Oshima		\ \ \			
99	Al	5,214,656	5-25-93	Chung et al.		. \			
			FOR	EIGN PATENT DOCUMENTS					
		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLA YES	NOITA NO	
PP	AJ	7-264148	10-13-95	Japan	Λ		abstract		
PP	AK	7-322219	12-8-95	Japan			abstract		
· 9P	AL	3-48587	3-1-91	Japan .			abstract		
	AM				\	$\downarrow \downarrow \downarrow$			
	AN								
		OTHER	DOCUMENT(S)	Including Author, Title, Date, Pertin	nent Pages, Etc.)				
PP	AO	J. A. C. Bingham, "I Communications M	Multicarrier Mo agazine, Vol. 2	dulation for Data Transmis 28, May 1990, pages 5-8 a	ssion: An Idea nd 11-14	Whose Time Ha	s Come", IEE	E	
PP	AP	B. Hirosaki, "An Ort Transactions on Co	hogonally Multimentations	tiplexed QAM System Usin , Vol. Com-29, No. 7, July	ng the Discret 1981, pages	e Fourier Transfo 982-989	rm", IEEE		
PP	AQ	L. J. Cimini, Jr., "Ar Multiplexing", IEEE	nalysis and Sin Transactions	nulation of a Digital Mobile on Communications, Vol. C	Jom-33, No. 1	r, July 1985, page	es 665-675 ai	ion nd Annex	
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^{*}EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copthis form with next communication to applicant.

Sheet 1 of 7	•		_								
FORM PTO 1449 (m		IENT OF COMMER	CF	ATTY DOCKET NO. 2003_1578		SERIAL NEW	NO.	5, 780)		
PATEN	IT AND	TRADEMARK OFFI ES CITED BY APPLICA	CE	APPLICANT Mitsuaki OSHIMA							
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				U.S. PATENT DOCUMENTS							
*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLA	ıss	SUBCLASS	FILING I	DATE IF PRIATE		
99	AA	5,311,550	5-10-94	Fouche et al.	<u> </u>		\				
99	AB	4,630,287	12-16-86	Armstrong							
PP	AC	4,271,527	6-2-81	Armstrong				y=	•		
PP	AD	5,050,188	9-17-91	Dirr							
PP	AE	5,398,073	3-14-95	Wei	1	\		•			
PP	AF	5,452,015	9-19-95	Hulyalkar					•		
PP	AG	5,565,932	10-15-96	Citta et al.							
18	АН	5,481,412	1-2-96	Bannai et al.					•		
PP	AI	3,909,721	9-30-75	Bussgang et al.							
				OREIGN PATENT DOCUMENTS				·			
		DOCUMENT NUMBER	DATE	COUNTRY	CLA	ASS	SUBCLASS	TRANS YES	LATION NO		
99	ĄJ	0365431	4-25-90	EP					×		
PP	AK	0485105	5-13-92	EP				×			
s PP	AL	92/14343	8-20-92	wo	\	\		х			
PP	AM	89/08366	9-8-89	wo .				×			
PP	AN	0031193	7-1-81	EP				×			
		от	HER DOCUMENT	(S) (Including Author, Title, Date, Pen	tinent Pages	s, Etc.)					
88	AO	Shinji Matsumot Telecommunica	to et al., "200 N tions Review, .	Ab/s 16 QAM Digital Radio-R January 1982, vol. 24, no. 1,	elay Syst pages 65	tem Ope 5-73.	erating in 4 and	5 GHz Band	ds*, Japan		
PP	AP		Pecot et al., "Compatible Coding of Television Images, Part 2. Compatible System", Signal Processing age Communication, October 2, 1990, no. 3, pages 259-268.								
PP	AQ	Mitsuaki Oshima	suaki Oshima, "Constellation-Code Division Multiplex for Digital HDTV", IEEE, 1992, pages 1086-1092.								
EXAMINER	I	PP	hu ·	DATE CONSID	ERED	10	117/07		-		

^{*}EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include cop, this form with next communication to applicant.

Sheet 2 of 7		,					1111111111				
FORM PTO 1449 (•	MENT OF COMMER	RCE	ATTY DOCKET 2003_1578	NO.	,	SERIAL NEW	.NO.	695, 78	30	
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		al sheets if necessary) to PTO: October 30,		FILING DATE October 30, 2003 GROUP 26 11							
				U.S. PATENT D	OCUMENTS						
*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NA	AME	CLA	ASS	SUBCLASS		DATE IF	
PP	AA	4,227,152	10-7-80	Godar	rd et al.						
99	АВ	4,525,846	6-25-85	Breme	er et al.						
PP	AC	4,751,478	6-14-88	Yos	shida						
PP	AD	4,891,806	1-2-90	Faria	s et al.						
PP	ÄE	4,903,125	2-20-90	Ра	rker		\				
19	AF	4,937,844	6-26-90	к	ao —						
PP	AG	5,164,963	11-17-92	Lawrer	nce et al.						
PP	АН	5,555,275	9-1996	Osl	hima					****	
. 66	AI	5,565,926	10-15-96	Bryar	n et al.						
				FOREIGN PATENT	DOCUMENTS						
		DOCUMENT NUMBER	DATE		INTRY	CLA	NSS	SUBCLASS	TRANS	SLATION S NO	
PP.	AJ	0311188	4-12-89	Ε	P				х		
PP	AK	0329158	8-23-89	E	P				х		
PP	AL	64-5135	1-10-89	J	JP		\		x		
PP	АМ	63-28145	2-5-88	J	IP				х		
(P	AN	62-133842	6-17-87	J	JP				×		
		ОТ	HER DOCUMENT((S) (Including Auth	or, Title, Date, Perti	inent Pages	s, Etc.)				
48	AO	Tricia Hill et al., COM-31, June 1	"A Performanc 1983, no. 6, pa	e Study of NL4 ges 821-826.	A 64-State QAN	√", IEEE	Transac	ctions on Con	nmunications	, vol.	
PP	АР	Hideki Ishio et a	lideki Ishio et al., "A Proposal of a Carrier Digital Transmission System Using Multi-Level APSK", pages 1-20.								
46	AQ.	Shanmugam, "D	nanmugam, "Digital and Analog Communication Systems" 1979, p. 272.								
EXAMINER		phuns	, plus		DATE CONSIDE	RED	10	117/0	7		

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FORM PTO 1449 (1		MENT OF COMMER	rce	ATTY DOCKET 2003_1578	NO.		SERIAL NEW	. NO.	695,7	80		
PATE	NT AND	TRADEMARK OFFI	ICE	APPLICANT Mitsuaki OS	HIMA							
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				U.S. PATENT D	OCUMENTS							
*EXAMINER INITIAL		DOCUMENT NUMBER	, DATE		ME	CIA	ASS	SUBCLASS		DATE IF		
PP	AA	5,105,442	4-14-92	Wei			·					
PP	AB	4,048,572	9-13-77	Doglio	tti et al.							
PP	AC	5,282,019	1-25-94	Basil	e et al.		·			_		
PP	AD	5,311,547	5-10-94	٧	Vei							
PP	AE	5,267,021	11-30-93	Ramchar	idran et al.	. \	\					
18	AF	5,038,219	8-6-91	Yamasi	nita et al.							
PP	AG	5,087,975	2-11-92	Citta et al.								
88	АН	5,086,340	2-4-92	Citta et al.								
PP	AI	5,243,629	9-7-93	Wei								
		· · · · · · · · · · · · · · · · · · ·	`F	OREIGN PATENT	DOCUMENTS							
		DOCUMENT NUMBER	DATE	cou	NTRY	CLA	ıss	SUBCLASS	TRANS	LATION S NO		
PP	AJ	53-137657	12-1-78	J	P				×			
99	AK	0282298	9-14-88	Eur	оре				X			
PP	AL	0392538	10-17-90	Eui	оре				×			
PP	АМ	0490552	6-17-92	Eur	оре				X			
99	AN	0506400	9-30-92	Eur	оре				X			
	,	от	HER DOCUMENT(S) (Including Autho	or, Title, Date, Perti	nent Pages	, Etc.)					
46	AO	Khaled Fazel et 1085	Khaled Fazel et al., Combined multilevel coding and multiresolution modulation, February 8, 1993, Pages 1081-									
PP	AP	P. Hoeher et al., Global Telecomr	P. Hoeher et al., Performance of an RCPC-Coded OFDM-based Digital Audio Broadcasting (DAB) System, IEEE Global Telecommunications Conference "Globecom '91", December 2-5, 1991, Vol. 1 of 3, Pages 2.1.1 - 2.1.7									
P <i>P</i>	AQ	K. M. Uz et al., C Pages 283-292	Combined multi	resolution sou	rce coding and	l modulat	tion for c	ligital broadcas	t of HDTV*	, 1992,		
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Sheet 4 of 7 FORM PTO 1449 (n	nodified)			ATTY DOCKET NO. 2003_1578		SERIAL NEW	NO. 10/6	595,7	80			
PATE	NT AND T	IENT OF COMMER FRADEMARK OFF	CE	APPLICANT Mitsuaki OSHIMA								
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				U.S. PATENT DOCUMENTS								
*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CL	ASS	SUBCLASS	FILING D				
PP	AA	5,142,353	8-25-92	Kageyama et al.			<u> </u>					
49	AB	5,197,061	3-23-93	Halbert-Lassalle et al.	\square							
PP	AC	5,291,289	3-1-94	Hulyalkar et al.								
PP	AD	5,166,924	11-24-92	Moose		<u> </u>						
PP	AE	4,940,954	7-10-90	Aubert et al.		igg igg						
98	AF	5,128,758	7-7-92	Azadegan et al.		\perp						
PP	AG	5,038,402	8-6-91	Robbins		$\overline{}$						
99	АН	5,638,112	6-10-97	Bestler et al.			\					
				FOREIGN PATENT DOCUMENTS			· •	,	···			
		DOCUMENT NUMBER	DATE	COUNTRY	CL	ASS	SUBCLASS	TRANS YES	LATION NO			
49	AI	0448492A1	9-25-91	Europe	Λ				х			
99	AJ	0485108A2	5-13-92	Europe				x				
PP	AK	0525641A2	2-3-93	Europe		_		Х				
PP	AL	0540231A2	5-5-93	Europe		$\overline{}$		×				
99	АМ	0531046A2	3-10-93	Europe	<u> </u>		\	×				
	· · · · · · · · · · · · · · · · · · ·	0	HER DOCUMENT	(S) (Including Author, Title, Date, Per	tinent Page	es, Etc.)						
48	AN	K. M. Uz et al.,	Multiresolution	Source and Channel Coding	for Digi	tal Broad	dcast of HDTV,	1992, Page	s 61-69.			
78	AO		mbi Seshadri et al., Multi-Level Block Coded Modulations with Unequal Error Protection for the Rayleigh ding Channel, Vol. 4, No. 3, May-June 1993, Pages 325-334.									
48	AP	William F. Schr	filliam F. Schreiber, Spread-Spectrum Television Broadcasting, SMPTE Journal, August 1992, Pages 538-549.									
EXAMINER	1		pphu.	DATE CONSID	ERED	-	0/17/07					

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copthis form with next communication to applicant.

Sheet 5 of 7		•								 	
FORM PTO 1449 (7	DEPARTI	MENT OF COMMER	PCF	ATTY DOCKET 2003_1578			SERIAL NEW		10/	695,7	80
PATE LIST OF RI	ENT AND REFERENC	TRADEMARK OFFI CES CITED BY APPLIC	FICE CANT(S)	APPLICANT Mitsuaki OS	SHIMA						
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*EXAMINER INITIAL		DOCUMENT NUMBER	DATE		NAME	CLA	SS	SUI	BCLASS	FILING APPRO	DATE IF
86	AA	5,063,445	11-5-91	Nishiza	lishizawa et al.						·
41	АВ	5,819,000	10-6-98	Os	shima					·	
91	AC	5,999,569	12-7-99	Os	shima	,					
99	AD	5,892,879	4-6-99	Os	shima						
			f	FOREIGN PATENT	T DOCUMENTS						
1		DOCUMENT NUMBER	DATE	cor	UNTRY	CLAS	ss	SUE	BCLASS	TRANSI YES	
99	AE	7-99522	4-11-95	Ja	apan					abstract	
. 49	AF.	7-79415	3-20-95	Ja	apan					abstract	,
11	AG	5-75568	3-26-93	Ja	apan					abstract	
P8	AH	86-07223	12-4-86	V	NO					х	· · · · · · · · · · · · · · · · · · ·
99	AI	2 187 611	9-9-87	Great	t Britain					х	
68	AJ	85/04541	10-10-85	V	NO		\			х	
PB	AK	04-196822	7-16-92	Ja	ıpan					abstract	
rr	AL	2-166979	6-27-90	Ja	pan					abstract	
PP	АМ	64-74836	3-20-89	Jar	ıpan					abstract	
PP	AN	53-108215	9-20-78	Ja	ipan		V			abstract	
		OTH	HER DOCUMENT(S) (Including Auth	oor, Title, Date, Pertin	nent Pages,	Etc.)				
88	AO	Martin Vetterli et Systems and Sig	al., Multiresolu jnal Processinç	ution Coding Tog, Volume 3, N	echniques for [May 1992, Page	Digital Teles 161-18	evision 7.	: A R	eview, M	ultidimension	nal ·
PP	АР	Ezio Biglieri et al.	., Introduction (to Trellis-Code	ed Modulation v	with Applic	cations,	, April	6, 1992,	Pages 173-2	207.
PP	AQ	English Languag	e Abstract of E	uropean Pate	nt No. 93 30 75	575					
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Sheet 6 of 7 FORM PTO 1449 (n	nodified)	•		ATTY DOCKET N	10.	SERIAL	NO. 10/	695,7	20	
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*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAN	AE	CLASS	SUBCLASS	FILING D		
79	AA	4,636,876	1-13-87	Schw	rartz					
19	АВ	4,855,692	8-8-89	Kennare	d et al.					
PP	AC	4,873,701	10-10-89	Tret	ter	\				
PP	AD	4,958,360	9-18-90	Sa	ri					
PP	AE	5,115,453	5-19-92	Calderba	nk et al.				-	
99	AF	5,168,509	12-1-92	Nakamu	ra et al.	et al.				
pp	AG	5,600,672	2-4-97	Oshima	et al.					
PP	АН	6,049,651	4-11-00	Osh	ima		•			
99	Al	6,256,357	7-3-01	Osh	ima	\				
				FOREIGN PATENT	DOCUMENTS					
		DOCUMENT NUMBER	DATE	COUN	ΠRY	CLASS	SUBCLASS	TRANSI . YES		
48	AJ	0122805	10-24-84	E	P			х		
39	AK	63-180280	7-25-88	JI	`	\		abstract		
9.9	AL	64-68144	3-14-89	Jap	ean			abstract		
PP	АМ	5-218978	8-27-93	Jap	oan			1	×	
19	AN	3-69295	3-25-91	Jap	pan				x	
		01	HER DOCUMENT	(S) (Including Autho	r, Title, Date, Pertinent F	Pages, Etc.)				
89	AO	Kazuhiko Nitado Conference on	ori, Synthesis o Communicatio	of Multichannel (ns, June 14-16,	Orthogonal VSB Si 1976, Volume 1, F	ignals by Qe Pages 3-25	uadrature Methe - 3-29.	od, 1976 Inte	ernational	
PP	AP	Thomas M. Cov	homas M. Cover, Broadcast Channels, IEEE Transactions on Information Theory, January 1972, Pages 2-14							
46	AQ	"Optimum Weig COM-26, No. 6,	Optimum Weighted PCM for Speech Signals", Sundberg, IEEE Transactions on Communications, Volume COM-26, No. 6, June 1978, Pages 872-881.							
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^{*}EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copthis form with next communication to applicant.

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*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE				
PP	AA	5,170,413	12-8-92	Hess et al.							
	АВ										
	AC										
				FOREIGN PATENT DOCUMENTS	s	Υ					
		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANS YES				
88	AD	57-39629	3-4-82	Japan			abstract				
78	AE	58-161547	9-26-83	Japan			abstract	·			
17	AF	63-180222	7-25-88	. Japan			abstract				
PP	AG	92/22162	12-10-92	wo			Х				
PP	АН	2-94814	4-5-90	Japan			abstract				
PP	AI	61-70861	4-11-86	Japan			abstract				
PP	AJ	2-218279	8-30-90	Japan			abstract				
pp	AK	2,095,435	5-10-92	Canada			X				
PP	AL	91/20137	12-26-91	wo			x				
19	AM	2-141049	5-30-90	Japan				х			
PP	AN	2-195732	8-2-90	Japan			abstract				
PP	AO .	5-167633	7-2-93	Japan			abstract				
PP	AP	2-260726	10-23-90	Japan				х			
44	AQ	58-161427	9-26-83	Japan			abstract				
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